

# FLIGHT

The  
AIRCRAFT  
ENGINEER  
&  
AIRSHIPS

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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## Flight

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## EDITORIAL COMMENT



MOST interesting report has just been issued by the War Office in connection with operations carried out by the Egyptian Army against the Garjak Nuers, a tribe inhabiting the Soudan on the western borders of Abyssinia. The reasons for these operations being undertaken do not here matter,

though it may be said that it had become necessary to punish this tribe for raids on other more peaceable peoples and to make the punishment severe enough to deter them in future.

The Garjak Nuers inhabit a stretch of country of about 4,000 square miles, and can put into the field a force of 10,000 fighting men armed with spears, bows and arrows, and a certain number of rifles obtained from across the Abyssinian border. Their country is exceedingly difficult for offensive operations, being mostly black cotton soil, with a growth of grass sometimes reaching ten feet in height, while it is copiously intersected by watercourses.

When it was decided to open the operations against this tribe, two small columns were employed of a strength of under a thousand men between them. Two gunboats co-operated with one column on the Sobat and Baro rivers, while two aeroplanes, manned by R.A.F. personnel, accompanied each column. In his report on the operations, the Sirdar says, after dealing with these against certain sections of the tribe:

"It was apparent that troops could no longer be usefully employed against an enemy, who, after his first defeat, adopted a purely passive resistance under protection afforded by the swamps and easy access into Abyssinian territory, so the Royal Air Force detachment was ordered to systematically bomb and gun their cattle camps. The success that attended these aircraft operations was immediate and decisive, and the Garjaks, recognising to what dangers they were exposed, speedily commenced negotiations for submission. By the beginning of June—the operations began in January—practically four-fifths of the Garjaks had submitted and paid tribute to the Government. Sheikh Mut Dang, with a small portion of the remainder of his tribe, alone remained hostile and insubmissive. . . . Before closing this report I should like to emphasise the importance of the part played by "H" unit of the Royal Air Force during these operations. In spite of the extreme difficulty of observation in this country, they provided Major Bacon with valuable information as regards the movements of the enemy, and their cattle, and

## DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

- July 29-31 Jacques Schneider Cup, Venice
- Aug. 27 ... Entries Close for Coupe Deutsch
- Sept. 4-11 Brescia Races
- Sept. 10 ... Pulitzer Trophy, Detroit, U.S.A.
- Sept. 18 ... Gordon Bennett Balloon Race
- Sept. 25-  
Oct. 2 Aero Exhibition, Prague
- Oct. 1 ... Coupe Deutsch de la Meurthe
- Nov. 12-27 Paris Aero Salon

I consider that the effects of their bombing flights were one of the most decisive factors leading to the ultimate submission of the enemy."

Operations such as these tend to emphasise the extreme value of aircraft in such small police wars as are constantly going on somewhere within the Empire or along its marches. Their value in the larger issues of war was too well demonstrated during the Great War to need enlarging upon here. We have seen already how aircraft extinguished the hopes of the mad Mullah of Somaliland, and the enormous assistance they have rendered in the course of operations on the Indian frontier. Now we have yet another example of how aircraft, employing a minimum number of personnel and at comparatively low cost, have enabled a decision to be reached almost immediately in an affair which could easily have dragged on for months and years had they not been available. Again, the lesson to be deduced is undoubtedly that in all these minor affairs the best and quickest way to settle them is to employ as many aircraft as possible to carry out the real offensive, using only a small number of troops to follow up and consolidate their successes. It has been clearly proved that much loss of life and expenditure of money can be avoided by the proper employment of aircraft in these affairs—a lesson which we doubt not is being more and more taken to heart by the War Office authorities.

#### The Airships

The *communiqué* from the Air Ministry, which we published in last week's issue of *FLIGHT*, together with statements which have been issued by the Special Committee on Air Communications, leave us considerably in the dark regarding the immediate future of the airships which are lying under sentence of extinction. What we do not know is whether that sentence is to be carried out, or whether the intention is to provide time and money to carry out experimental trials of sufficient length and duration to determine satisfactorily whether or not these craft can be successfully operated on the aerial mail routes of the Empire. One of the first statements issued by the Special Committee referred to such trials, with the assumption that they would extend over a period of "some months." Such a period would, the Committee remarks, be intended to enable the various Governments concerned to reach a final decision on three schemes which have been submitted to the Air Ministry with a view to saving the airships from execution.

It must be said at once that something much more definite than this is required. No real trial of airships on the Empire air routes is possible within a period measured by the elastic term indicated by "some months." Such trials cannot be undertaken until all the ground organisation necessary has been completed, including the provision of mooring masts, airship bases, and all the rest. To establish these alone must be the work of "some months." It seems to us that the real point is whether or not the airships are worth a real and exhaustive trial. If they are, as we believe, then they should be given a thorough trial; if they are not then certainly no useful purpose can be served by postponing the execution of sentence, and some amount of public money can be saved by scrapping them. The two alternatives are perfectly plain, and it is for the Special Committee frankly to declare

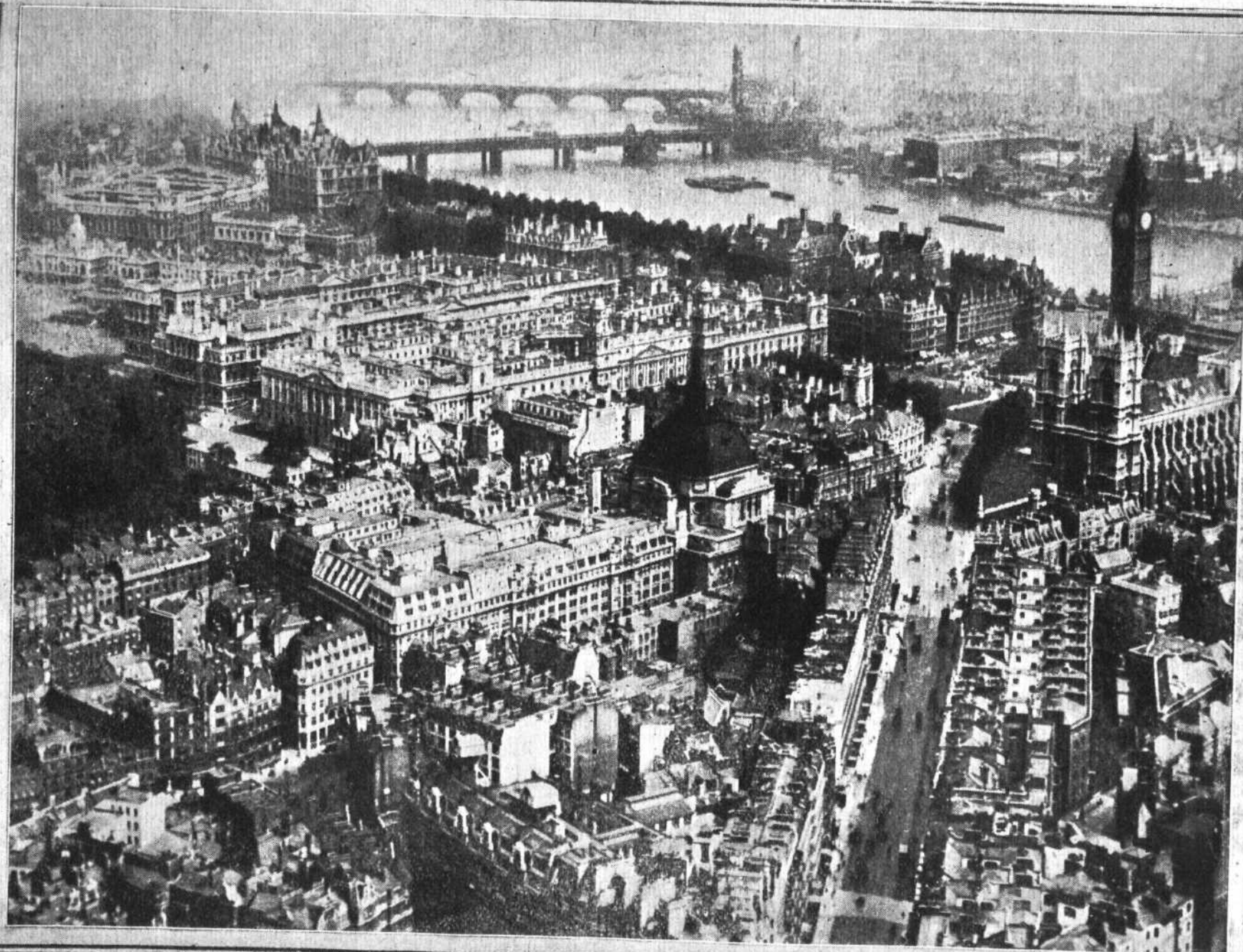
for one or the other. Nor should the Special Committee have a great deal of difficulty in making up their minds on the subject. There is data enough available as to running cost, maintenance, and so forth, to indicate approximately the cost of carrying on regular services between this country and the Dominions, always assuming that the airship should be found capable of use commercially. Of course, income is the one doubtful side of the question, but even this it is possible to approximate with reasonable closeness—nearly enough at any rate for the Committee to be able to say whether it is worth while risking the comparatively small sums involved by the suggested experiments.

The way for the Committee to look at the matter is not so much whether the results of experimental flights to the Dominions are likely to be successful or not. Nobody who knows anything at all about the subject is under the delusion that the airship has arrived at the last expression of its development. Even if existing types should fail utterly, it would not, we submit, prove that the airship has no future, no possibilities. But in this connection we do not think existing types *would* fail. Quite the contrary, for we are convinced that the ships we now have are capable of successful operation on the Empire air routes, given the proper organisation. The whole subject has to be approached from a different standpoint than that of the success or failure of a limited trial. Rather the question should be of what are the prospective advantages to the Empire as a whole of the successful development of the airship. Almost the whole answer to this is that it now takes a full three months to make the journey to Australia and back. Given that the airship can be successfully operated, the time can be reduced to as many weeks. Is this worth while? If it is—and there can be no two opinions on the subject—then we submit that the case for a thorough trial of the airship, even if it takes a period of years instead of months, is fully made out, and the Special Committee need look no farther for their decision.

#### German Aviation

There is not the slightest doubt that Germany intends by every means in her power to encourage the development of civil aviation. Not only does the German Government take all and every measure possible to develop the movement, but it would seem that the German people are quick to realise and take advantage of the facilities afforded by the numerous aerial services which are being established for the carriage of passengers and mails. So well are the mail services patronised by the public that it has been found necessary to establish a chief aerial post-office in Berlin in order to deal with the mass of correspondence which leaves the capital daily in connection with the regular air services which are now running. These services now comprise a very comprehensive list as collected by the Berlin correspondent of the Aircraft Disposal Co., and are set out in another part of this week's issue. These services represent a total of daily flights of nearly 6,000 miles over German territory alone. Government subsidies to the amount of 10 marks per kilometre to exclusively German companies are paid for flights of less than 250 kilometres, and 11 marks per kilometre for flights exceeding that distance. In return, the Government requires the companies to declare its daily services in advance, and to undertake the carrying of passengers and mails.





LONDON-PARIS FROM THE AIR, AS SEEN FROM A HANDLEY PAGE MACHINE

Copyright Handley Page Transport, Ltd.

No. 4: Victoria Street, Westminster, looking towards the Thames from Artillery Row, showing Charing Cross Railway Bridge and Waterloo Bridge; on the left, the great range of Government Offices, and the Horse Guards backing on to St. James's Park, and beyond can be seen the Royal United Service Institution, the War Office, Whitehall Court, Hotel Cecil, etc.; on right is Westminster Abbey with the Clock Tower beyond.



It also insists upon connections at specially indicated railway stations in order to link up with the fast train services, and every effort has to be made to connect with the international air services flying through Germany and making use of German aerodromes. In the occupied territories, motor-cycle services are utilised to carry mails and passengers to and from the nearest points at which German aircraft are allowed to land by the Inter-Allied Air Commission.

This is a tale of activity which we may well lay to heart. After every allowance has been made for the difference between the conditions subsisting here and on the Continent, the reflection cannot be avoided that they do these things better in Germany than we seem to be doing in this country. At our present rate of progress, it will be a long time before the postal authorities find it necessary to establish a special post office to deal with the aerial mails leaving London! We very largely blame the Post Office for the comparative slowness with which the air mail services are developing. In Germany, every means seems to be adopted to call the attention of the public to the fact that air mails are worked, and to point out the advantages to the business community which their superior speed offers. Here the Post Office issues a bald announcement to the effect that it is now possible to send letters and parcels by air to the Continent, quotes the rates—and lets it go at that. It does not advertise its services, nor does it go the smallest step out of its way to induce people to take advantage of the aerial post. Its attitude is that it has, in deference to pressure applied, instituted these services, and if the public uses them, well and good. If it does not, then well and good also. We hate to be "crabbing" our own institutions all the time, but the difference between the methods of our own tape-bound Departments and those of France and Germany is too patent to be ignored.

#### The Channel Services

The Air Ministry announces that several proposals for operating air services on the cross-Channel routes under the scheme prepared by the Londonderry Committee have been submitted by private firms. This scheme, it will be remembered, was published in June last, and provides for a period of development covering the ensuing three years, during which time a subsidy will be paid to approved services on the basis of 25 per cent. of the gross earnings of each "approved" firm. It is very satisfactory to know that there are other Richmonds in the field, in addition to the concerns which are now operating services between here and the Continent, if only for the reason that it shows there are concerns with enough faith in the future of commercial aviation to risk capital and enterprise in its development. Three years is not a long period during which to be able to look forward to State assistance in the carrying on of these services. It will soon pass, and the companies concerned will have then to stand on their own feet—or get out of the business. By that time we shall see whether or not it is possible to run aerial mail and passenger services on a commercially remunerative basis. For our own part, we have not the smallest doubt in the matter. Even now the margin between making a profit or a loss is very slight, and when we remember that services are mostly being carried on by means of converted war machines and on so relatively small a scale that overhead charges are almost

prohibitive in their incidence, it would appear almost a matter of mathematical certainty that when conditions alter we shall find that air services will pay, and pay handsomely.

It is just this three years that requires to be tided over—the period during which commercial aviation is engaged in finding its feet—and the Government subsidy scheme is wisely limited to that time. We agree that if there is nothing in commercial aviation as a business proposition it had better be allowed to lapse, and we shall do well to concentrate on the development of aircraft for warlike purposes. If there is, however, it should be given every chance to develop along the right lines, and that is what the subsidy is designed to do. Having no doubts whatever as to which of the sides of the proposition is the right one, we hear with the greatest satisfaction that the subsidy is attracting commercially minded people towards the business of aerial transport.

#### Parcels Post to Paris

We published in our issue of July 14 an announcement made by the Postmaster-General of the terms upon which a parcels air mail between England and France is to be carried on. We need not say how much we welcome this new evidence of the manner in which aviation is entering into the life of the nation and the improved and more rapid means of communication which it places at our disposal. At present, the intention is to run one service daily, but if the experiment justifies itself there is no doubt it will very shortly be extended considerably. Unfortunately, it seems to be rather doubtful whether it will be so justified, since it seems to us that the rates to be charged are scarcely so moderate that the commercial community is likely to take great advantage of the new service, save in cases of great urgency. These rates are based on the usual charge for inland parcels, plus one shilling per pound for air conveyance.

This is well enough when small parcels are concerned. A parcel weighing a pound can be sent to Paris for 1s. 9d., which is not really out of the way, but when we come to the maximum weight allowed for a single package and find that it costs 12s. 6d. to send 11 lbs., the proposition does not seem so attractive. The internal rate for parcels works out at 9d. for a parcel weighing one pound, while 11 lbs. can be sent for 1s. 6d. Taking this as a basis of comparison, the air charges seem extraordinarily high, and calculated to defeat the whole object of the service.

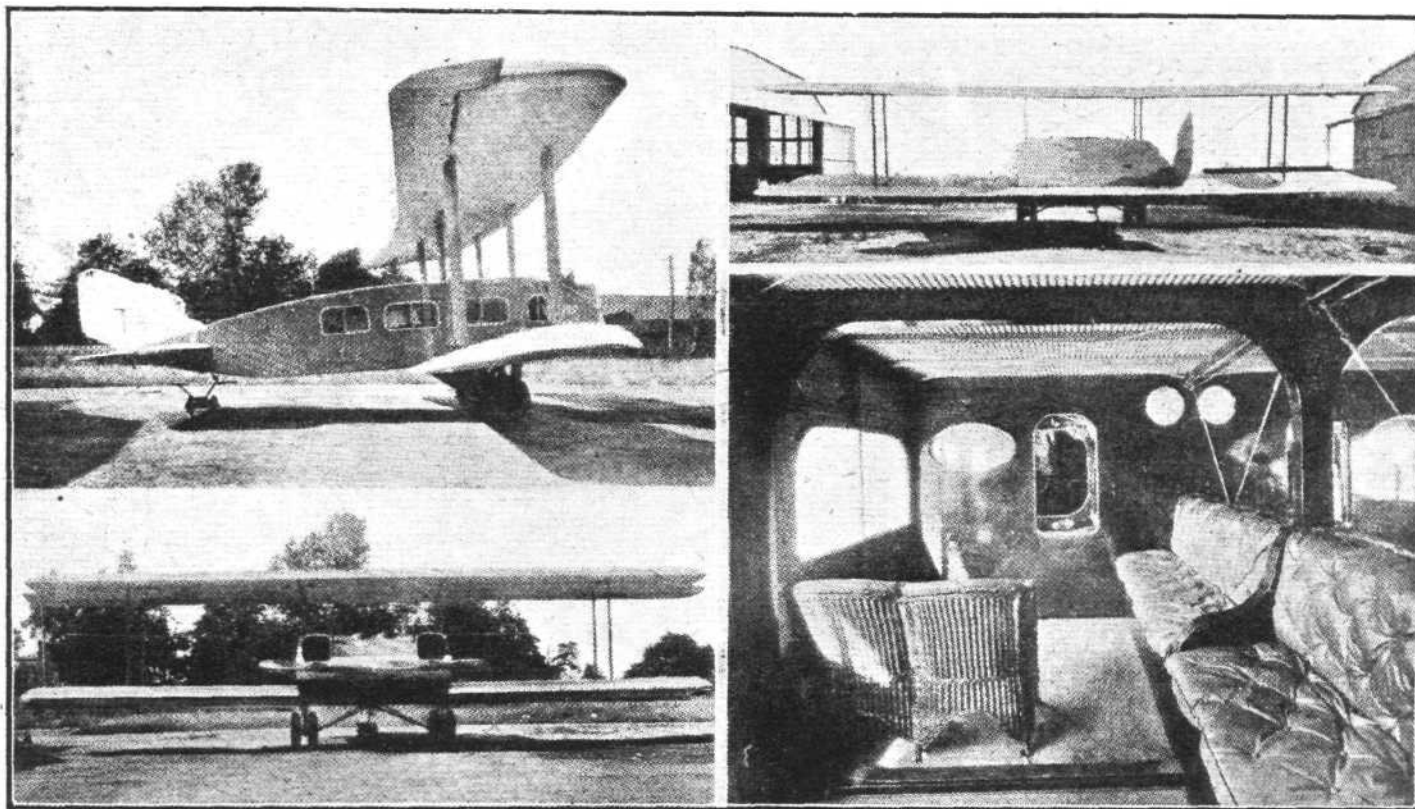
We believe that the rates for parcels of over 1 lb. in weight could be materially reduced to bring them within attractive limits and still produce a paying service. The factor which stands in the way of paying air services is the heavy overhead charges which are incurred, but, as we have repeatedly pointed out, the way to get over this is to increase the number of daily arrivals and departures. It requires very little more ground staff to deal with a dozen machines than with one. The obvious course to be taken, if commercial aviation is to be made to pay its way, is to calculate transport charges on an attractive basis so as to bring traffic. Initially there may be a loss, but as the commercial public increases its use of the services more and more machines must be put on to the routes, and what was a small loss in the beginning will be turned into a substantial profit before very long. It is not the way, however, of the Post Office or any other Government Department to look ahead and assist in this way.



## THE REMINGTON-BURNELLI "AIRLINER" TWIN-ENGINE COMMERCIAL BIPLANE

SOME brief particulars, which we reproduce herewith, of a very interesting machine are given in our American contemporaries *Aviation* and *Aerial Age*. As will be seen from the accompanying illustrations, this machine, which has been built by the Airliner Engineering Corp., of Amityville,

wide in front and is built in the shape of an *aerofoil*; it thus contributes to the lift of the machine. The power plant is composed of two Liberty XII 400 h.p. engines driving tractor propellers. Owing to the width of the *fuselage* it was possible to house both engines in the nose instead of mounting them in

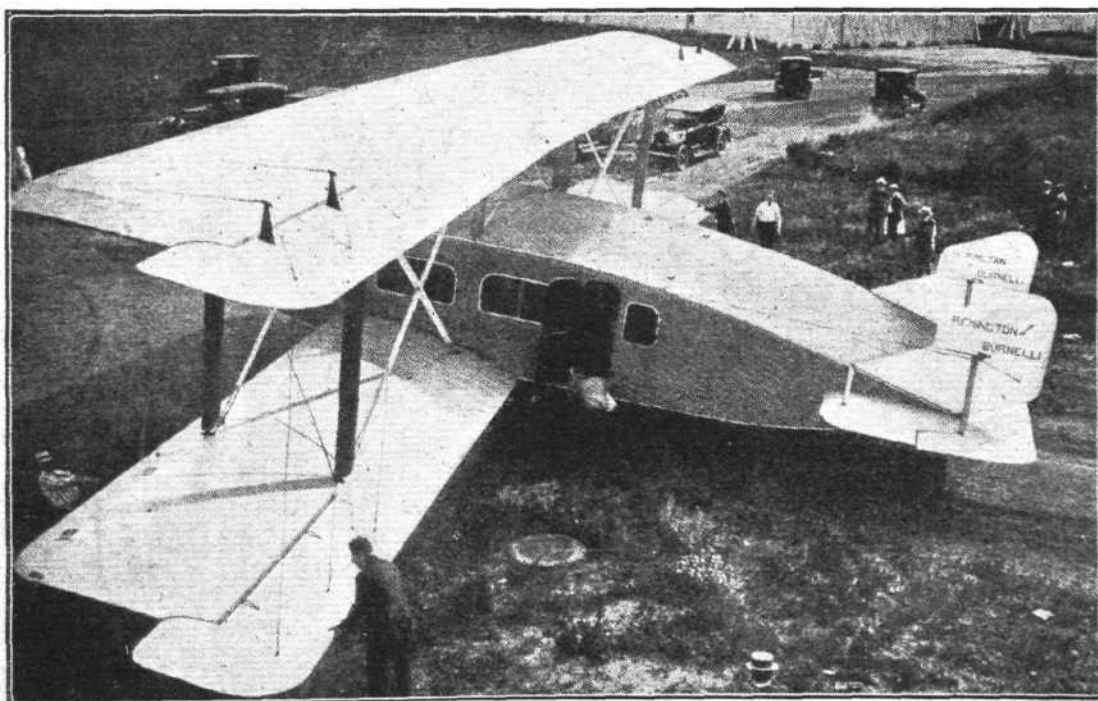


Four views of the Remington-Burnelli "Airliner" Twin-Engine Commercial Biplane. On the left are side and front views, showing the wide "aerofoil" fuselage; on the right, at the top, is a rear view, and below an interior view of the port side of the passengers' cabin, the full accommodation of which is 30.

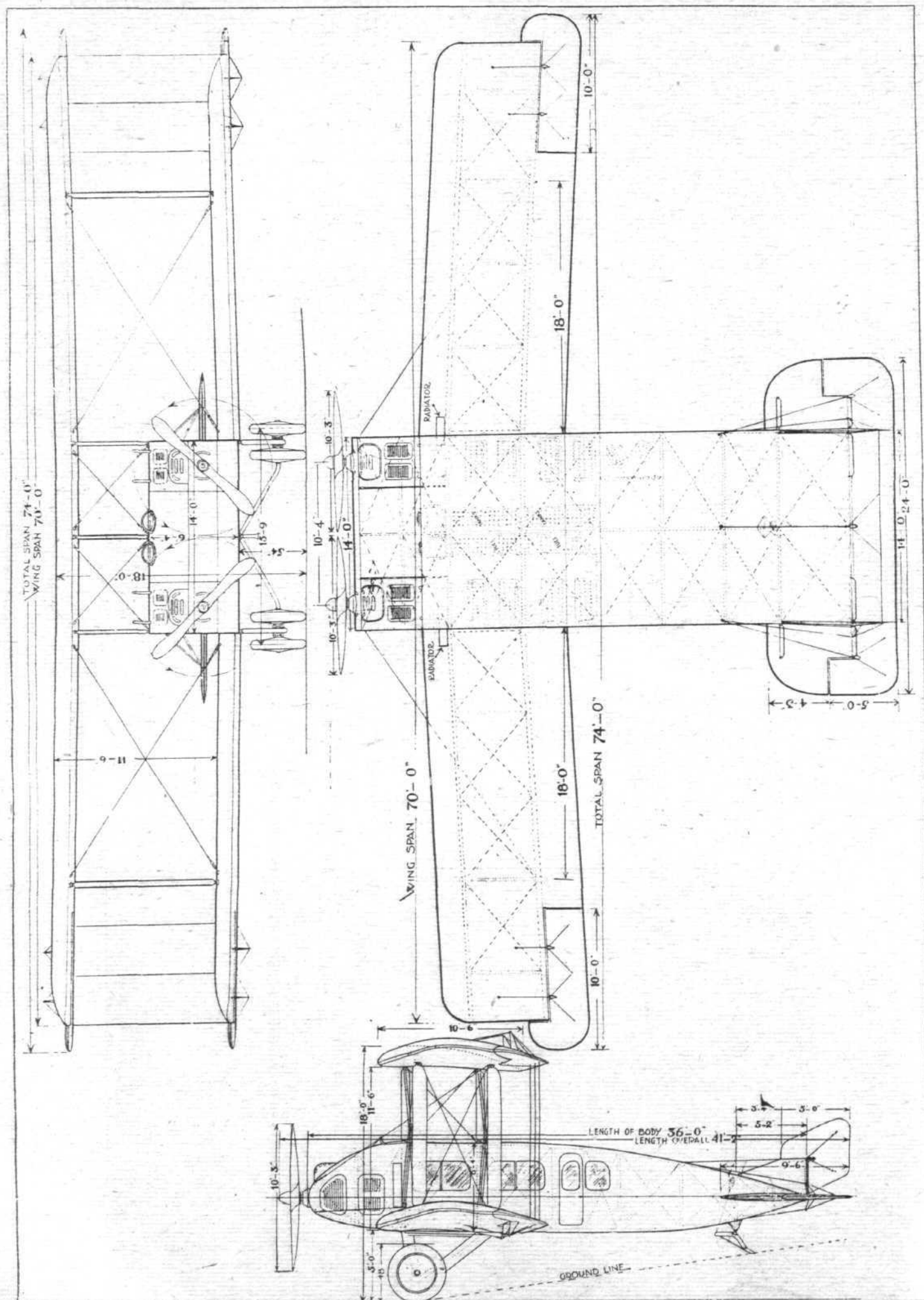
Long Island, to the designs of Vincent J. Burnelli, is a large commercial biplane of distinctive appearance, embodying a great number of original ideas. Chief among these is the great width of the *fuselage*, which may be visualised from the view showing one-half of the cabin. The *fuselage* is 14 ft.

separate wing *nacelles*. A great deal of parasite resistance was thus done away with and the arrangement has the further advantage that it enables the mechanic to adjust the engines in flight.

Although no constructional details of the Airliner are as yet



Another view of the Remington-Burnelli "Airliner."



THE REMINGTON-BURNELLI "AIRLINER" TWIN-ENGINE COMMERCIAL BIPLANE.  
General arrangement drawings.



available, the following particulars will be of interest. The span of the machine, on both upper and lower wings, is 74 ft. The designed wing loading is 9 lb./sq. ft. and the aerofoil shaped fuselage contributes to the lift by carrying 5 lb./sq. ft. The weight empty is about 8,000 lb. and the possible gross weight is estimated at 14,637 lb. The normal fuel capacity of the machine is for a flight of 7½ hours, although more fuel can, of course, be carried if the number of passengers is reduced. Seating accommodation is provided for thirty passengers.

The fuselage is built up on three transverse plywood partitions and is covered with corrugated duralumin. The forward section houses two pilots, for whom a dual control set is provided, and the mechanics. The next two sections constitute the passenger compartment, which is fitted with comfortable cushioned seats. The rear section tapers in height but not in width to a horizontal knife edge and carries the tail unit. This consists of a horizontal stabiliser with a one-piece elevator and of two vertical fins and two rudders mounted on edges of the fuselage.

The wings are built in orthodox fashion, being fabric surfaced over a wooden framework, and carry balanced ailerons.

The landing gear consists of two V structures carrying rubber sprung twin wheels, which are stayed at the centre-line of the fuselage by means of steel struts.

Full test flights of the Airliner will take place shortly. A short trial flight was achieved on June 21, at Curtiss Field, Long Island, when Bert Acosta took up the machine after running the engines for a while on the ground and flew it to Mutchel Field, where he made a perfect landing.

The following are the principal characteristics of this machine:—

Length overall .. .. .	41 ft. 2 ins.
Height .. .. .	18 ft. 0 ins.
Span .. .. .	74 ft. 0 ins.
Chord .. .. .	10 ft. 6 ins.
Aspect ratio—wings .. .. .	6.662/3

Aspect ratio—fuselage .. .. .	39
Wing section .. .. .	M-2
Fuselage section .. .. .	Special.
Gap .. .. .	11 ft. 6 ins.
Angle of incidence .. .. .	2°
Dihedral .. .. .	1°
Sweepback .. .. .	3°
Load per sq. ft. (wings) .. .. .	9 lbs.
Load per sq. ft. (fuselage) .. .. .	5 lbs.
Load per h.p. (one motor) .. .. .	30- (15 lbs.)
Horse power .. .. .	1,000 h.p.
Fuel capacity .. .. .	430 gall.
Climb .. .. .	900 ft. per min.
Ceiling .. .. .	14,000 ft.
Speed maximum .. .. .	110 m.p.h.
Cruising speed .. .. .	96 m.p.h.
Landing speed .. .. .	50 m.p.h.
Duration .. .. .	8 hours

<i>Areas.</i>	
Upper wing .. .. .	735 sq. ft.
Lower wing .. .. .	588 sq. ft.
Fuselage .. .. .	504 sq. ft.
Total lifting surface .. .. .	1,827 sq. ft.
Ailerons .. .. .	124 sq. ft.
Stabilisers .. .. .	50 sq. ft.
Elevators .. .. .	104 sq. ft.
Fins .. .. .	25 sq. ft.
Rudders .. .. .	40 sq. ft.

<i>Total Weights.</i>	
Fuselage .. .. .	2,439 lbs.
Power plant .. .. .	2,873 lbs.
Empennage .. .. .	293 lbs.
Wings .. .. .	2,019 lbs.
Landing gear .. .. .	513 lbs.
Regulation 25 passenger load or bombs .. .. .	3,500 lbs.
Petrol, oil, etc. .. .. .	3,000 lbs.
Weight of machine empty .. .. .	8,137 lbs.
Weight of machine loaded .. .. .	14,637 lbs.

## THE LONDON-CONTINENTAL SERVICES

FLIGHTS BETWEEN JULY 17 AND JULY 23, INCLUSIVE

Route†	No. of flights*	No. of passengers	No. of flights carrying		No. of journeys completed†	Average flying time	Fastest time made by	Type and No. (in brackets) of Machines Flying
			Mails	Goods				
Croydon-Paris ...	44	245	13	23	41	2 42	D.H.4 G-EAMU (1h. 58m.)	B. (8), Bt. (1), D.H.4 (2), D.H.9 (1), D.H.18 (2), G. (4), H.P. (3), Sa. (1), Sp. (3), V. (1).
Paris-Croydon ...	41	159	15	24	39	3 6	D.H.4 G-EAMU (2h. 12m.)	B. (7), Bt. (1), D.H.4 (1), D.H.9 (1), D.H.18 (2), G. (3), H.P. (2), Sa. (1), Sp. (3), V. (1).
Croydon-Brussels ...	9	15	3	5	9	2 27	D.H.4 O-BARI (1h. 57m.) ...	D.H.4 (3), D.H.9 (2).
Brussels-Croydon ...	9	14	6	5	9	2 44	D.H.4 O-BARI (2h. 13m.) ...	D.H.4 (4), D.H.9 (1).
Croydon-Amsterdam ...	7	15	6	6	7	3 22	D.H.9 H-NABF (2h. 52m.)...	D.H.9 (1), F. (4).
Amsterdam-Croydon ...	7	16	7	6	7	3 39	Fokker H-NABQ (3h. 27m.)	D.H.9 (1), F. (3).
Totals for week ...	117	464	50	69	112			

\* Not including "private" flights.

† Including certain journeys when stops were made en route.

‡ Including certain diverted journeys.

Av. = Avro. B. = Breguet. Br. = Bristol. Bt. = B.A.T. D.H.4 = De Havilland 4, D.H.9 (etc.).  
 F. = Fokker. Fa. = Farman F.50. G. = Goliath Farman. H.P. = Handley Page. M. = Martinsyde. N. = Nieuport.  
 P. = Potez. Sa. = Salmson. Se. = S.E. 5. Sp. = Spad. V. = Vickers Vimy. W. = Westland.

The following is a list of firms running services between London and Paris, Brussels, etc., etc.:—Co. des Grandes Expresses Aériennes; Handley Page Transport, Ltd.; Instone Air Line; Koninklijke Luchtvaart Maatschappij; Messageries Aériennes; Syndicat National pour l'Étude des Transports Aériens; Co. Transaérienne.

### Ostend Air Service

In future the aeroplane leaving London daily for Brussels, will call at Ostend, carrying passengers to the latter destination at a fare of £5 single and £9 return.

Passengers leave the Lep Aerial Travel Bureau, Piccadilly Circus, at 11.15 a.m., for departure from Croydon at 12.30. The aerodrome, which is quite near the town of Ostend, is reached at 2 p.m.

### How to Find Prague Aerodrome

In the interest of foreign airmen who do not know the position of the Prague aerodrome, the Aviation Detachment has marked the centre of the aerodrome with a white circle 165 feet in diameter, with the word "Prague" in the circle, in letters 33 ft. high, direction N.S.

The circle and letters are white sand, so that the name is legible from an altitude of 6,500 ft.

## THE PRESENT POSITION OF GERMAN AVIATION

THE Berlin correspondent of the Aircraft Disposal Co., Ltd., reports that owing to the steadily increasing use of the German aerial mails, the German Postal Authorities have found it necessary to establish a chief Aerial Post Office in the Koenigstrasse, Berlin, in order to deal with the mass of correspondence which leaves Berlin daily in connection with the following regular air services:—

(1) Berlin - Warnemunde - Malmo - Copenhagen by the Lloyd Luftverkehr Sablatnig and North-West European Companies.

(2) Copenhagen - Hamburg - Bremen - Amsterdam - London (Berlin linking up via Hamburg and Bremen), by the North-West European Company, the Deutsche Luft Reederei, and the Kon. Luchtvaart Maatschappij.

(3) Berlin - Bremen - Amsterdam - Rotterdam by the Deutsche Luft Reederei and the Kon. Luchtvaart Maatschappij.

(4) Berlin-Brunswick-Dortmund by the Deutscher Luft-Lloyd.

(5) Berlin - Magdeburg-Leipzig - Dresden by the Deutscher Luft-Lloyd linking up with the Prague service at Dresden.

(6) Berlin - Leipzig - Nuremberg - Furth - Munich - Augsburg by the Rumpler Luft-Verkehr.

(7) Hamburg - Magdeburg - Leipzig - Dresden by the Deutscher Luft-Lloyd.

(8) Berlin-Dantzig-Koenigsberg by the Lloyd Ost Flug.

(9) Dantzig-Koenigsberg-Memel by the Danziger und Deutsche Luft-Reederei.

(10) Berlin-Munich-Constance by the Bayerischer Luft-Lloyd (linking up with Switzerland at Constance).

(11) Berlin-Munich-Constance-Stuttgart by the Bayerischer Luft-Lloyd and the Straehle Luftverkehr.

(12) Berlin - Bremen : Wangeroo - Norderney - Hamburg - Westerland by the Lloyd Luftverkehr, and the Deutsche Luftreederei.

(13) Berlin - Travemunde - Warnemunde - Sassnitz - Swinemunde by the Lloyd Luftverkehr.

A map illustrating this report refers exclusively to the present German Air Services which represent a total of daily flights exceeding 5,800 miles over German territory alone. The German Government now grants a subsidy of ten marks per kilometre to exclusively German companies for flights less than 250 kilometres and eleven marks per kilometre for flights exceeding 250 kilometres.

The official stipulations, however, require each subsidised company to declare its daily services in advance and to undertake the carrying of mails and passengers. Connections at specially indicated railway stations in order to link up with the railway expresses are also insisted upon, and every effort has to be made to link up with the international air services flying through Germany and making use of German aerodromes.

In regard to the occupied zone, motor bicycles carry the mails and passengers from the nearest points at which German aircraft are permitted to land by the Inter-Allied Air Commission.

## THE NEW DESERT AIR ROUTE TO MESOPOTAMIA

A résumé of the method adopted for the survey of the new air route which has now been completed between Palestine and Mesopotamia across the Syrian Desert, and to which reference in FLIGHT has been made several times, has been sent us by the Air Ministry.

It is an interesting story. The reconnaissance party which was detailed to survey the projected route, both from the point of view of actual flying and of providing supplies, was provided with W/T equipment, armoured cars and tenders. Its headquarters were established at Amman. It was organised as follows:—(a) Car reconnaissance detachment, consisting of two armoured cars, two tenders and six light tenders, and (b) Air reconnaissance detachment, consisting of three D.H.9A. machines.

The work was carried out as follows:—

A daily reconnaissance of 50 miles was made by the car party, the air party reconnoitring each day 50 miles in advance of the car party, and informing them by W/T message or otherwise, as to the nature of the route ahead. To enable the pilots to locate easily the whereabouts in the desert of the cars, all vehicles traversing the route drew a chain harrow after them, each car following the track of the one in front. The machines co-operating with the ground party returned to Amman every night.

In support of the desert reconnaissance party, a base detachment equipped with additional tenders, water carts, etc., was stationed at Amman, and was in wireless communication with the working party throughout the journey. Three

aeroplanes were also kept in reserve at Amman and two at Ramleh.

The reconnaissance parties left Kaar-Azrak on June 10. By June 19, the ground party had reached a point only some 169 miles east of Amman, having been delayed for five days seeking a way through lava beds. A way out was found, and the progress thenceforward was good. The petrol consumption of the cars was heavy during this stage, and only five miles was averaged to the gallon. Owing to this delay, additional petrol, rations, etc., had to be conveyed to the party by air. Ramadie was eventually reached on June 25, the party having covered a total distance of some 450 miles.

The advantages of the new route, as previously pointed out, are many. It will provide facilities for the quick transfer of Service aircraft between Cairo and Baghdad, will speed-up communications and will enable economies in administration to be effected.

As an immediate instance of these advantages, it falls to be recorded that one day this month Air Vice-Marshal Sir Geoffrey Salmond flew from Cairo to Baghdad in 12 hours, including two stops for re-fuelling, taking with him official correspondence which was delivered in Baghdad the same day, instead of a month later, as has hitherto been necessary.

The creation of this route by the R.A.F., will, too, as in the case of the establishment of the Cape-Cairo Air Line, open up a new link in the chain of Imperial routes, and will enable Civil aircraft to follow in the wake of Service machines.

### Honours

THE KING has given orders for the appointment of Flight-Lieut. Roy Maxwell Drummond, D.S.O., M.C., Royal Air Force, to be an Officer of the Order of the British Empire (Military Division) in recognition of distinguished services in the operations in the Sudan against the Garjak Nuers in 1920. The *London Gazette* states:—

This officer performed most excellent work in command of H. Unit, Royal Air Force. Notwithstanding the adverse conditions that were met with, both at the aerodrome and in the air, the work performed by his unit in reconnaissance of the country and bombing expeditions was one of the decisive factors leading to the success of the operations. The capable handling of his unit and the method of carrying out the duties assigned to him are deserving of the highest praise.

### Aerial Photographs

COPIES of the aerial photographs, and other photographs which appear in FLIGHT from time to time, can be obtained from our official photographers, F. King and Co., Ltd. These

### Air-Post Efficiency

THE Postmaster-General announces that the mail for Egypt, India, etc., which was despatched by air from London to Paris on Friday last, duly overtook the ordinary mail which left England on Thursday, and has been forwarded from Marseilles by the P. & O. packet "Devanha." Since the beginning of July until last Saturday inclusive, the air mails for Paris have on all occasions reached Le Bourget within three hours of the scheduled time of arrival, and only four mails have been more than one hour late. A similarly good record has been achieved on the London-Amsterdam route.

Credit, states the P.M.G., is due to the companies concerned for the degree of punctuality which, assisted by the fine weather they have thus been able to attain.

prints, on bromide paper (black and white), measuring 8½ ins. by 6½ ins., cost 2s. 6d. each, post free. Orders, with remittance, should be sent to F. King and Co., Ltd., 36, Great Queen Street, W.C. 2.

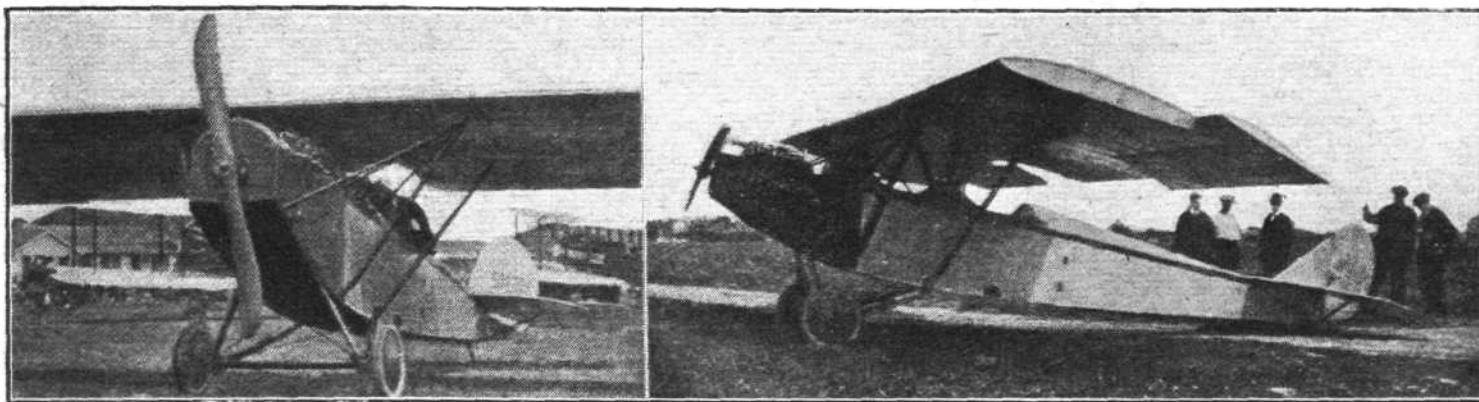


## THE SPERRY "COMMERCIAL" WING

DESIGNERS appear to be giving considerable attention to improved and new types of aeroplane wings just now, the principal aim in most cases being a wider speed range. From America come some brief particulars of a new monoplane wing, which has already been tried out with apparently very satisfactory results. This wing has been designed by the Lawrence Sperry Aircraft Corp. of Farmingdale, Long Island, U.S.A., with a view to improving the performance of such machines as Curtiss J.Ns. ("Jennies"), Canucks, Standard Curtiss Js., etc. There are a large number of these machines

the manufacturers as 10. No information is available on the internal construction of the wing other than that it is an internally braced wooden structure covered in the usual manner with fabric. It is also said to possess inherent stability.

Owing to the latter feature and to the raised position of the wing above the fuselage, the manufacturers state that a machine fitted with the Sperry wing will not get into a nose dive, if stalled, nor will it get out of control for any length of time. The following figures, prepared by the makers, give



THE SPERRY "COMMERCIAL" WING: Two views of a Curtiss J.N. fitted with the Sperry monoplane wing (cantilever) in place of the usual biplane wings.

being used for commercial and sporting purposes all over the United States, and in spite of the fact that their design is over five years old, they appear to serve their purpose remarkably well, and are likely to do so for some time to come. The ease of obtaining spare parts is a further aid to their popularity. The Sperry Co. have, therefore, placed their new monoplane wing on the market specially for use on these machines, so that owners of the latter may obtain better performance without, it is claimed, detracting from the practical features of the machine.

As may be seen from the accompanying illustration of a Curtiss J.N. fitted with the Sperry equipment, the wing is a thick section cantilever structure mounted parasol fashion above the standard fuselage. The attachments consist of eight streamlined steel struts, four on each side of the fuselage. Of these a pair on each side extend from the lower longerons of the fuselage to the front and rear wing-spars, the others forming an inverted V, from the top longerons to the front wing-spar. Two round steel tubes, acting as drift struts, also connect the bracing points on the front spar with nose of the fuselage, on the lower longerons. The whole bracing system thus forms a rigid structure.

The strength of the Sperry wing has been tested in extensive trial flights, the factor of safety for the wing being given by

the respective performance of five popular types of machines when fitted with the Sperry wing:—

Machine	Engine h.p.	Speed Range m.p.h.	Useful Load lbs.
Curtiss J.N. or Canuck	Ox 90	35.75	800
	Oxy 100	35.80	800
Standard J.-I	Ox 90	35.75	800
Standard ..	K-6 150	38.90	900
Standard ..	Hispano 150	38.90	900

The improvement in performance obtained with the Sperry wing, which is particularly noticeable in the low landing speed (the original J.N. biplane has a landing speed of 45 m.p.h. and the useful load is 500 lbs.), is due to the thick wing section employed, as well as to the great reduction in parasite resistance which is brought about by the cantilever construction. The parasol arrangement of the wings has the further advantage of providing much better visibility from the pilot's cockpit, and greater accessibility for the passenger and pilot. By virtue of the absence of wire bracing, inter-plane struts, etc., usually associated with biplanes, and requiring constant building-up, a machine fitted with the Sperry wing requires hardly any rigging, and is easily maintained in proper flying trim.

### R.A.F. Memorial Fund Assistance

THE Committee of the Royal Air Force Memorial Fund has decided to offer financial help, so far as the means of the Fund will permit, to officers, non-commissioned officers, and men serving in the Royal Air Force, who are in need owing to illness, whether of themselves, their wives or children, provided that they have by their conduct and prudence deserved assistance and that the burden on them is not sufficiently met by the normal provision of medical attendance granted under the rules of the Service.

### Airships and the Air Communications Committee

THE first meeting of the special committee on Air Communications set up by the Imperial Conference was held at the Air Ministry on July 19, under the Chairmanship of the Secretary of State for Air. Consideration was given to the arrangements which would be necessary if the date now fixed for the closing down of the airship service was postponed for a period of some months to enable a final decision to be given to the various Governments concerned on the three schemes which were outlined in the statement issued to the Press some time ago. Considerable expenditure

would be involved and estimates were presented and considered.

It was decided, in view of the terms of reference of the Committee and of the limited cargo-carrying capacity of airships, that the estimates which the Committee should prepare for future services, beyond the above-mentioned interim period, should be for the provision of a limited and possibly irregular transport service for passengers and mails only to the eastern boundaries of the Empire, the existing fleet being utilised to its utmost capacity. Due consideration should be given in the selection of Air Routes to questions of Imperial strategy and defence, and to the assistance which the Royal Air Force could afford to civil transport undertakings.

As a preliminary to the discussion of estimates the Committee considered the utilisation of heavier-than-air craft over certain sections of Imperial air routes and the manner in which the route could be developed for speed utilisation for commercial undertakings; particular reference was made in this connection to the importance of the Cairo-Karachi route.

## LONDON TERMINAL AERODROME

Monday Evening, July 25.

WELL over 400 passengers have been carried again this week to and from the Continent, and many more would have been forthcoming on this side had there been accommodation for them. Full loads have not, however, been available on return journeys from the Continent.

It is interesting to compare the number of passengers carried during the week by the various companies. The totals are given below:—

Instone Air Line, 131; Grands Express Aérien, 104; Messageries Aériennes, 74; Handley Page Transport, 72; Royal Dutch Air Service, 30; S.N.E.T.A., 22.

The total for the Brussels traffic must have been much larger. Many passengers, actually booked from London to Brussels, have been unable to find accommodation owing to the fact that the S.N.E.T.A. have not sent over machines to carry them. Even, however, taking this point into consideration, the difference in volume of traffic between London and Paris and the London-Amsterdam and London-Brussels routes is certainly remarkable.

### Handley Page Plans

HANDLEY PAGE Transport are hampered through lack of machines, and have had many more applications for seats, just lately, than they have been able to satisfy. It is their intention, however, to concentrate upon getting together a really up-to-date fleet of "air expresses," and I understand that Mr. Handley Page himself is, at the moment, working personally with this object in view.

I am told also that the Handley Page service to and from Paris is to be continued all through the winter, and that the W. 8, with the two Lion motors, will be used regularly.

Negotiations are proceeding, it is said, for the allocation to the Handley Page company of the new Bristol 10-passenger biplane.

Contrary to reports in certain journals, all Handley Page Transport machines are still fitted with wireless. It is worthy of note, also, that all British aeroplanes used regularly on the "airways" are now equipped with wireless, and I think I am correct in stating that, with the exception of one Goliath, none of the foreign machines carry wireless. Even on the Goliath the installation is incomplete and not in use.

### De Havilland Activities

A VISIT to the De Havilland Aircraft Works at Stag Lane, Edgware, made on Tuesday, revealed two new D.H. 18's nearing completion. One will be ready in about a fortnight, and the other is not far behind. A third D.H. 18 is also shortly to be put in hand.

The D.H. monoplane, though rather ugly-looking on the ground—due probably to its unusual design—is, I am told, extremely graceful when viewed from the ground while in flight. The machine has, so far, made about half-a-dozen flights; but the correct propeller, a three-blader, is not yet to hand, and no performance tests have been carried out.

A second D.H. monoplane is also approaching completion.

The most remarkable feature of these new machines, to the lay mind, is the fact that the wing-span of the monoplane is only slightly greater than in the "18," and yet with the one wing of the monoplane, as against the two of the "18," a larger actual "lift" is obtained.

If wind-tunnel performances are duplicated on the actual full-scale machine, then this D.H. monoplane bids fair to oust all other designs for commercial work.

The D.H. works appeared quite active on the day of my visit. There were two D.H. 9's, used for "taxi" work, out on the aerodrome. Two others, also on the "taxi" service, were, I was informed, away on flights. An Instone B.A.T. had just arrived from Croydon, while a lorry and trailer drove up with a D.H. 10 fuselage, the canvas covers for a new hangar following close behind.

Sir Samuel Instone was also a visitor to the works, apparently discussing new machines for the Instone Air Line.

### Instone Record-Breaking

ON Saturday the Instone Air Line sent two machines with 22 passengers to Paris on their 10.30 a.m. service. On Friday two D.H. 18's were needed to cope with the traffic.

Mr. Barnard tells me that in each of the past six weeks they have created a new traffic record, only to break it with the next week's figures.

Slight alterations are being made to the buffer-springs at the head of the airship mooring-mast, and, in the meantime, "R. 33" is not "on visiting terms" with Croydon.

Mr. Dollery, of the airship department, is now getting down to detail work, and tells me we shall not know the place shortly. He has apparently been bitten with the aerodrome

craze for flower gardens, and intends to beautify the plant at the foot of the mast.

Engine-room telegraphs have been fitted from the top of the mast to the winding engine, and also to the winches which control the movements of the stern of the ship while she is being moored. Further moorings will therefore take place to the accompaniment of the clanging of these telegraph bells.

### Airship "Joy-Rides"

WHEN the alterations to the mast are completed, which is expected to be towards the end of the week, it is hoped to make arrangements for the public to have a closer view of the airship. The possibility of airship joy-rides is also being discussed. The only drawback to this scheme is the necessity for gassing the ship if frequent "moorings" have to be made.

Captain Leverton has had a peculiar experience of Post Office methods in regard to some parcels which came over from Amsterdam.

These parcels were ordinary freight, and had nothing to do with the Post Office, but some bright official on the Amsterdam aerodrome had put them into a spare mail-bag for ease in packing into the aeroplane.

On arrival at Croydon they were taken out of the machine by the man who collects the mail, and handed over to the Post Office without question. The Post Office now declares that they are air parcel-post; also that, as they are not stamped, double postage must be paid on them. "Negotiations" are still proceeding.

### The Problem of Speed

THE argument in favour of having reserve power in a machine, and having a high maximum speed, was well illustrated on Saturday afternoon. The 2 p.m. Fokker monoplane out of Amsterdam for London occupied no fewer than 6½ hours on the journey, including the 15-minutes' stop at Rotterdam. This was due to the strong head-wind encountered throughout the journey.

Ever since the beginning of the London-Continental air services there has been controversy as to the problem of speed; but it is evident that when the question of punctuality of service is considered, particularly in regard to winter flying, it is false policy to sacrifice speed for load-carrying capacity.

### 1,500 Miles by "Air-Taxi"

A REMARKABLE air-taxi journey, by Mr. Hinchcliffe, chief pilot of the K.L.M., was carried out between Friday morning and Sunday night. A passenger hired a D.H. 9 in Amsterdam, and left there at 3.15 a.m. on Friday morning for Berlin. He was having breakfast in Berlin by 9.15 a.m. After transacting business over Friday and Saturday, he was flown back to Amsterdam on Saturday evening.

Leaving Amsterdam again at 7.30 a.m. on Sunday morning, he arrived at Croydon at 10.30 a.m., and, after a short halt, went on to Lowestoft. From there the flight was continued back to Amsterdam on Sunday night. By the time Lympne was reached, and Customs formalities attended to, it was 9.25 p.m., and getting dark. Mr. Hinchcliffe was, however, determined to reach Amsterdam the same night, and completed the final 200 miles of the flight in the dark, landing safely at Schiphol aerodrome at 11.25 p.m. The entire journey was one of approximately 1,500 miles.

### "Air Express" as an Ambulance

MESSAGERIES AÉRIENNES turned one of their five-seater "Spads" into an ambulance on Tuesday. The patient, a lady, who was accompanied by a nurse, had to be carried to the machine and lifted in. It is understood that she was going to Paris for an urgent operation.

One of the M.A. Breguets came to grief on Monday and crashed near the airship mast. The machine was badly damaged, and one of the passengers slightly injured.

### An Aerodrome Fire

SHORTLY after this the pilot of another Breguet, landing from Paris, lost his "prop," and, while waiting for assistance, lighted a cigarette, throwing down the match on the aerodrome. The dry grass caught fire at once, and the aeroplane was dragged out of the flames only just in time. The underside was, in fact, blackened and scorched.

Messrs. Rolls-Royce have presented a cup for the winners of the inter-section cricket championship. Two more of these matches were played during the week, Handley Page beating Searchlights, and the C.A.T.O. losing to the Meteorological and Wireless section.

The aerodrome team also played two matches during the week, losing to Mitcham and winning against Croydon Telephones.



## ROYAL AERONAUTICAL SOCIETY NOTICES



**Lectures.**—Among the papers to be read during the next lecture session, commencing in October, will be one by Sqdr.-Ldr. R. M. Hill, M.C., A.F.C., on "The Manœuvres of Getting Off and Landing an Aeroplane," which has been communicated recently to the Aeronautical Research Committee, at whose request it is being read before the members of the Society in order to give an opportunity for discussion.

**Admission of Associate Fellows.**—In order to carry into effect the new regulations for the admission of Associate Fellows adopted at the Annual General Meeting, the Candidates Committee has been engaged upon drawing up a syllabus for the Society's Examination, now adopted by the Council. The syllabus provides for candidates' examination in the following subjects:—

Part I.—(a) English; (b) French, German, Italian, or Spanish.

Part II.—One paper in any two of the following subjects, to be selected by the candidate: (a) Strength and elasticity of materials, and theory of structures. (b) Aerodynamics. (c) Heat engines. (d) Meteorology and navigation. (e) Mathematics. (f) Chemistry and metallurgy.

The Council have decided that, for the present, each paper will contain a large number of questions in order to give a wide choice of tests of the candidate's knowledge.

The Council have further decided to accept an approved course of aeronautics at a University or Technical College as part of the two years' qualifying experience in the application

of the science of aeronautics required by the regulations, in addition to examination results—the total allowance in such cases not to exceed one year.

Details of qualifications giving exemption from either Part I or Part II of the examination will be found in Clause IX of the Regulations.

The first examination will be held in April, 1922.

A list of books recommended for students has been drawn up, of which copies may be obtained on application to the Secretary.

**Library.**—The following books and pamphlets have been received and placed in the Society's Library:—"The Case-Hardening of Steels," by H. Brearley; "Non-Ferrous and Organic Materials," by A. W. Judge; "An Explorer in the Air Service," by Hiram Bingham; "Constructions Aéronautiques (Aviation)," by F. R. Petit; "Essay on Enemy Aircraft Exhibition," by R. L. Preston; "Guide to the Care and Maintenance of Aero Engines (Stationary, Radial, and Rotary)," D. of R. Air Ministry, British Aircraft Standard Catalogue, "Scheme for Immediate Temporary Entry of Officers into the R.A.F.," Air Ministry; "(Provisional) Regulations under which Permanent Commissions in the R.A.F. may be obtained by University Candidates," Air Council; "Provisional Regulations for Admission to the R.A.F. (Cadet) College, Cranwell," Air Council; "(Provisional) Regulations for Short Service Commissions in the Royal Air Force," Air Council.

W. LOCKWOOD MARSH,  
Secretary

## THE NATIONAL PHYSICAL LABORATORY REPORT

THE National Physical Laboratory Report for the year 1920 is to hand, from which we quote the following brief summary of the more important work done in connection with aeronautics:

As regards equipment and apparatus, the 7 ft. by 14 ft. Duplex tunnel (described in last year's Report) has taken longer to complete than was anticipated, but it is now practically ready for calibration, and the motors have passed their acceptance tests—the trials showing that the fans designed for the tunnel are satisfactory, a wind speed of over 100 ft. per sec. having been obtained. A roof balance of somewhat novel type has been designed for the Duplex tunnel—the lift balance is arranged so that it will measure both the sum and the difference of the tensions in the two steel wires supporting the model in the tunnel; it will thus be possible to measure the rolling moment due to *ailerons* or airscrew torque. A new direction and velocity meter (yawmeter) has recently been constructed also, in which adjustment is possible about two perpendicular axes, instead of about one axis only, as in the original instrument.

Numerous tests, for stability, etc., of complete models of aeroplanes have been made. Models of the Tarrant "Tabor," Vickers "Valentia," Boulton and Paul "Bourges," Avro "Manchester," Short "Cromarty," and Fairy No. 4 flying boat have been tested. Several models have been tested of the type in which the wings and fuselage form a single structure, without external bracing. They were found to possess, from the aero-dynamic point of view, a considerable advantage over the usual biplane arrangement, and experimental machines are at present being constructed to decide whether this advantage is realisable in practice.

Work on new wing sections has been limited to the testing of a few special aerofoils for the Air Ministry, and for private firms. A model of the Fokker biplane is now being made, and should supply useful information in regard to the possibilities of wing sections which are sufficiently thick to require no external bracing.

The principal research of the year has been the measurement of pressure distribution over the entire surface of a rotating airscrew blade. With the data afforded by these experiments, and further ones now in progress, it is hoped that a considerable advance will be made in the aero-dynamic theory of airscrews.

Another research, which has been completed during the past year, is an investigation of the nature of the air flow around an airscrew, undertaken with the object of determining the extent to which the airflow assumed in the momentum theory of Froude is realised in practice. The experiments were made in a 7-ft. wind channel on a model airscrew of 3.9 ft. diameter, under various working conditions; measurements were made, in both the inflowing and outflowing air streams, of the distribution of velocity, total head and pressure. It was found that the total head remained constant as the air flowed into the airscrew disc, so that an increase of velocity head was accompanied by an equal decrease of pressure head; also, that at the airscrew disc the air received an appreciable increase of pressure combined with a small increase of velocity. After leaving the airscrew disc, the pressure in any streamline fell rather rapidly, with a corresponding increase of velocity, and became more or less constant after reaching the section of minimum diameter; at any section of the outflowing stream, the distribution of pressure and of velocity was fairly uniform, except at the boundary and in the vicinity of the body. This investigation established in a general manner the soundness of the underlying conception of the Froude Momentum Theory.

Certain experiments relating to airships have been carried out, both on models and full scale, including problems of towing and mooring, improved forms of nose-stiffening for non-rigids, control surfaces, stability and control, etc.

The full Report can be obtained from H.M. Stationery Office, price 5s. net.

### Cross-Channel Aeroplane Services

SEVERAL proposals, the Air Ministry states, for operating services on Cross-Channel routes under the scheme prepared by Lord Londonderry's Committee on Cross-Channel Aeroplane Services have been submitted by private firms.

This scheme, which was published in *FLIGHT* on June 23, provided briefly for a period of development during the next three years on the following basis:—

(a) Firms will be "approved" by the Air Ministry on certain conditions for the operation of services on the routes between London-Paris, London-Brussels, and

London-Amsterdam. (Further routes may be approved at a later date.)

(b) Orders will be placed by the Air Ministry for aeroplanes of modern commercial types to be hired out to "approved" firms.

(c) A subsidy of 25 per cent. will be paid by the Air Ministry on an "approved" firm's gross earnings.

Companies or persons interested in the development of aerial transport services are reminded that proposals should be submitted for consideration to the Secretary (C.G.C.A.), Air Ministry, Kingsway, W.C. 2, not later than Monday, August 1.

# NOTICES TO AIRMEN

## Aerodromes for Civil Use : Consolidated List

It is notified that :

1. Aerodromes, seaplane stations and landing grounds, open to civil aviation in the United Kingdom, and service and civil stations, available to civil aircraft in case of emergency only, are now given in lists which have been corrected to July 1, 1921.

2. The lists are classified as follows, each aerodrome or landing ground being given in alphabetical order :—

LIST A.—Government-owned aerodromes available for civil flying, at which accommodation exists : (a) Civil Aerodromes, (b) Service Stations.

LIST B.—Aerodromes available for civil machines in emergency only : (a) Permanent Service Stations. (b) Stations temporarily retained for Service purposes. (c) Civil Stations.

LIST C.—Licensed Civil Aerodromes : (a) Civil Aerodromes licensed for all types. (b) Civil Aerodromes licensed as " Suitable for Avro 504 K and similar types of aircraft only."

LIST D.—Unlicensed Private Aerodromes. Aerodromes available for civil machines only by special permission of the owners, or in emergency.

Notices to Airmen Nos. 33, 35, 39, 43, 45 and 51 of the year 1921 are hereby cancelled.

(No. 56 of 1921.)

## Pilots' Licences : Compulsory Examination in Elementary Meteorology

It is hereby notified :—

With reference to Notice to Airmen No. 28 of the year 1921, by which every applicant for a pilot's licence to fly passenger or goods aircraft (Class " B " Licence) or for a renewal of such licence, will, from a date to be notified later, be required to undergo an examination in elementary meteorology. A syllabus of the examination is now published by the Air Ministry for the guidance of candidates.

The answers to the questions in this syllabus may be found in Lempfert's " Meteorology," published by Messrs. Methuen and Company, Ltd., 36, Essex Street, London, W.C. 2, price 7s. 6d.

(No. 55 of 1921.)

## Lympne Aerodrome : Cloud, Visibility and Weather Signals

(1) A REVISED system of ground signals to denote to pilots the height of clouds, visibility and weather at Biggin Hill and Croydon aerodromes will be brought into operation at Lympne aerodrome on July 14, 1921, in substitution for the existing system, described in Notice to Airmen No. 24 of 1921.

(2) The signals will consist of two groups, one referring to Biggin Hill, to be prefixed by the letter " B," and the other to Croydon, to be prefixed by " C."

(3) This letter will be followed by two figures and one symbol. The first of the two figures will refer to the height of the base of the cloud, the second figure to the visibility, and the symbol to the weather.

(4) The scales for the height of the cloud, the distances of visibility, and the symbols for weather are as follows :—

### (a) Height of Cloud

0	means cloud below	50 metres (= 150 feet.)
1	"	" 100 " (= 300 " )
2	"	" 200 " (= 600 " )
3	"	" 300 " (= 1,000 " )
4	"	" 400 " (= 1,300 " )
5	"	" 500 " (= 1,700 " )
6	"	" 600 " (= 2,000 " )
7	"	" 700 " (= 2,300 " )
8	"	" 800 " (= 2,600 " )
9	"	above 900 " (= 2,600 " )

### (b) Visibility

0	means visibility less than	500 yards.
1	"	" 1,000 "
2	"	" 2,000 "
3	"	" 3,000 "




## Engine Delivery by Air

A NOVEL method of delivering an engine by air is reported by the U.S. 4th Air Squadron at Haiti. One of the submarine chasers broke down at Aux Cayes, en route to San Domingo, and a new engine part, weighing 90 lbs., had to be dispatched from Port au Prince. On account of the rainy season the roads were impassable, and there was no aerodrome at Aux Cayes. The package was finally delivered by a D.H.4b biplane, piloted by 2nd Lieut. K. B. Collings, as follows :—

4 means visibility less than 4,000 yards.

5	"	"	" 5,000 "
6	"	"	" 6,000 "
7	"	"	" 7,000 "
8	"	"	" 8,000 "
9	"	"	above 8,000 "

If the figure 0 is enclosed in a square, thus , it signifies that visibility is less than 200 yards.

### (c) Weather



Rain or drizzle.



Snow, hail or sleet.



Thunderstorm or line-squall.



Gale.

(5) All signals will be white, the cloud signals representing the height of clouds above the respective aerodromes and not above sea level.

(6) A typical signal would be :—

C 21 

meaning that at Croydon the cloud was below 600 feet, the visibility was less than 1,000 yds., and it was raining.

(7) The signals are situated approximately 30 yards east of the office of the Civil Aviation Traffic Officer, and 140 yds. west of the Compass Base. They are so placed as to appear the right way up to a pilot flying in a north-westerly direction.

(8) Cancellation :—Notice to Airmen No. 24 of 1921 is cancelled, as from July 14, 1921.

(No. 57 of 1921.)

## France : St. Inglevert Aerial Lighthouse : Prohibition of Photography

### 1. St. Inglevert Aerial Lighthouse

THE aerial lighthouse, which was temporarily out of action, is again in operation, with increased hours of working. It is now lit each night from sunset to two hours after sunset.

### 2. Prohibition of Photography

THE unauthorised use of photographic or cinematographic apparatus on board aircraft by persons other than of French nationality is forbidden over the whole of French territory.

In exceptional cases, permission to use photographic or cinematographic apparatus on board aircraft may be granted by the Director of the Service de la Navigation Aérienne, on request being made. Such permission, if granted, will be available over the whole of French territory, with the exception of the following areas :—

(a) that portion of French territory situated east of a line running along the valley of the Meuse, the valley of the Moselle and the upper part of the Doubs as far as Switzerland.

(b) the six fortified harbours of Cherbourg, Brest, Lorient, Rochefort, Toulon, and Bizerta (N. Africa) ; and the towns of Dunkirk, Nice, Villefranche and Bonifacio (Corsica).

### 3. Previous Notices

Notice to Airmen No. 122 of 1920 is hereby cancelled. Paragraph 1 of Notice to Airmen No. 98 of 1920 again becomes effective, with the amendment given in paragraph 1 above.

(No. 59 of 1921.)

## Aerodromes for Civil Use : Amendments

NOTICE to Airmen No. 56 of 1921 (Aerodromes for Civil Use : Consolidated List) is amended as follows :—

LIST C. Licensed Civil Aerodromes. The following should be added : Wilmslow and Skegness.

(No. 60 of 1921.)



# CURISMS FROM THE FOUR WINDS

BOURGET is to have that big flight meeting for certain, it is now announced, and in October next.

GLAD to note that, as he was again flying at Villacoublay last Saturday, Sadi Lecoq is no doubt himself again.

A GERMAN aviation company which took 10,000 marks in the year as commercial receipts has, it is reported, recently paid a generous dividend out of two Government subsidies, amounting to 1,600,000 marks. By way of explanation it is added that the "subventions are given as an inducement to the company to build for the purposes of civil aviation airships of a type readily adaptable to military purposes. It is a part of the German plan for evading the disabilities imposed by the Treaty of Versailles."

Still, that 10,000 marks (about £40 at present rates) "receipts" looks just a wee bit suspicious, so we are inclined to await the receipt of further figures.

"A CHICK has been hatched at Uxbridge with four wings and two heads, and another with four legs."—*Daily paper*.

That's the sort of biplane the restaurants are after. Uxbridge may expect an invasion of Soho messieurs seeking to place forward contracts if this sort of thing goes on.

FRENCH mayors must enjoy a nice peaceful life, judging by a summary of their duties in respect to one item of their office, as set out in a note of the French Ministry of Finance. Dealing with the assistance to be given by local authorities to the Customs Service, the Director-General of Customs defines this item of service on the part of the Mayor, on the landing of an aircraft within his jurisdiction, thus:—

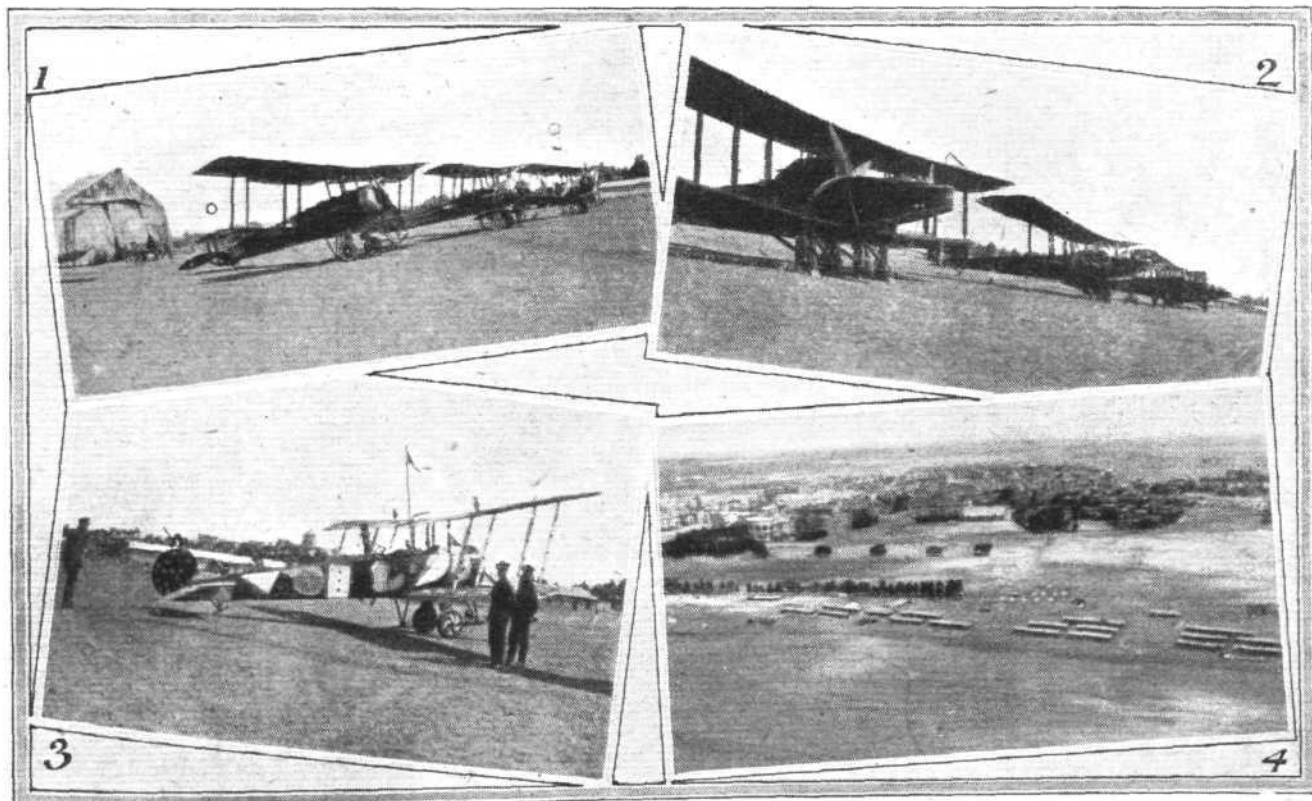
"A mayor, as soon as he is informed that an aircraft has landed in his commune, must at once proceed to the spot; he must ask to see the pilot's papers (log-book, passenger list, manifest), and ascertain from these whether the aircraft is engaged on a journey to or from abroad. If

such is the case he must notify the nearest fiscal authority (Customs or Revenue, according to the place), and until the said authority arrives he must take the necessary measures to prevent the crew and passengers from leaving the aircraft, also the removal of any material or of the cargo. The mayor shall, if necessary, assist the fiscal agents in carrying out the legal formalities."

VERY interesting and suggestive is a summary to hand of Company negotiations at Somerset House for the six months to June last, compiled by Messrs. Jordan and Sons, Ltd. There are 3,125 classified under dozens of headings, with a total capital value of 52 million pounds sterling odd as against 6,415 with 448 million odd for the same period in 1920. Aeronautical companies, we notice, come under the heading "Air," and figure at one public and six private companies with an aggregate capital of £26,300—modest in the extreme. But it is a bit doubtful if "Air" is the best definition to use for classifying concerns aviatic. Safer to dub them "Aeronautical" or "Flight," otherwise when the end comes to units of the other categories there may be found an awful lot to transfer as having started and finished in the air.

At last the International Balloon Race can be run off without fears of international complications. The United States is now no longer at war with Germany, having made formal declaration of the end of the War. We are just trying to fog out whether we still have half a dozen wars on hand to be settled.

WITH the Aerial Derby still fresh in mind, it seemed quite natural that we should, the other day, run up against Major C. Tyrer—who was the principal organiser of the first Aerial Derby. He looked very fit, complete with monocle, and did not surprise us in the least when he said "I'm off to Central Africa tomorrow." He wishes to be remembered to all his old friends, and has promised to tell us more about his latest expedition.



FROM THE AERIAL PAGEANT IN EGYPT: Some time ago the first aerial pageant was held in Egypt with great success. Our photographs show (1) a line of Avros used for passenger "flips"; (2) some of the Handley Pages which performed the function of char-à-bancs admirably although having seen service at the front; (3) a "jazz" Avro which caused much merriment by going up with smoke pouring out of the funnel aft of the cockpit and with an officer hanging on to the flagstaff attached to the top centre-section; (4) is a view from above of the aerodrome, with Heliopolis in the background.

# THE ROYAL AIR FORCE

London Gazette, July 8

## Short Service Commissions

Flying Offr. R. T. Colley resigns his commn. ; July 6.

## Flying Branch

Observer Offr. H. E. Power relinquishes his temp. commn. on return to Army duty; March 17, 1920 (substituted for *Gazette* March 26, 1920). Flight-Lieut. D. H. M. Carbery (Capt., R.F.A.) relinquishes his temp. commn. on return to Army duty; Jan. 1 (substituted for *Gazette* March 8). Sec. Lieut. J. E. West relinquishes his temp. commn. on account of ill-health contracted on active service; Jan. 13, 1920 (substituted for *Gazette* Jan. 20, 1920).

## Technical Branch

Lieut. R. Harrison (T.F.) relinquishes his temp. commn. and is permitted to retain his rank; Aug. 1, 1919 (substituted for *Gazette* Oct. 8, 1920).

## Memoranda

The follg. Cadets are granted hon. commns. as Sec. Lieuts., with effect from the dates of their demobilisation:—17668 H. W. B. Bray, 318718 M. S. Mainland.

London Gazette, July 12

In pursuance of His Majesty's pleasure, Group Capt. E. R. Ludlow-Hewitt, C.M.G., D.S.O., M.C., has been appointed Air A.-de-C. to the King; July 1.

## Promotions

The second Christian name of Flight-Lieut. Paul Ward Spencer Bulman, M.C., A.F.C., is as now described, and not as *Gazette* July 1.

## Permanent Commission

Light-Lieut. R. S. Sugden, A.F.C., is restored to the active list from half-pay; July 6.

## Short Service Commissions

The following are granted short service commns. in the ranks stated, with effect from, and with seniority of, the dates indicated, except where otherwise stated:—

*Flying Officers from Flight Lieutenants*.—R. J. M. De St. Leger; July 1. F. H. E. Reeve; July 4. L. H. T. Sloan, A.F.C.; June 29.

*Flying Officers*.—W. F. Davenport; July 4. C. B. Dove; July 2. R. R. Greenlaw; June 28. C. F. P. Haslegrave; July 1. R. T. Shepherd; July 4. A. T. K. Shipwright; July 4.

*Flying Officers from Pilot Officers*.—F. J. Brunton June 30. R. S. Maitland-Edwards; July 5.

*Pilot Officers on Probation*.—\*P. W. Adams, \*E. B. Addison, \*I. P. Anderson, E. J. Dashwood, A. D. Drysdale, A. M. Glover, \*A. L. Harris, G. P. F. Hills, \*E. C. N. Jeffries, \*L. G. A. Kirchner, R. P. Mollard, G. C. Sclater, J. A. R. Stevenson, \*F. K. Wright; June 28. S. F. Coles, \*S. H. Cooper, C. Douglas, B. J. O'Connor Hanstock, F. H. Stuart-Murray; July 4. The above-named Flight-Lieuts. who are granted short service commns. as Flying Officers, will be placed at the head of the list of Flying Officers, but junior to all officers similarly reduced in rank on the grant of permanent or short service commns. \* Signifies previously served in R.A.F.

Flying Officer G. Fox-Rule, D.F.C., relinquishes his commn. on account of ill-health contracted in the Service and is granted the rank of Capt; June 29. The commn. of Pilot Officer on probation C. G. Dromgole is terminated on cessation of duty; July 5.

## Seconding

Lieutenant H. Aldridge (E. Surrey R.) is granted a temp. commn. as a Flying Officer on seconding for four years' duty with the R.A.F., with effect from, and with seniority of, June 30.

## Flying Branch

The following relinquish their temp. commns. on appointment to T.F.:—Lieut. R. H. Johnson (unemployed list); Sec. Lieut. G. Todd (unemployed list). Sec. Lieut. W. K. Dunmore (unemployed list) relinquishes his temp. commn. on joining the Army. Flying Officer H. B. Hammond, M.C., relinquishes his temp. commn. on return to Army duty; June 23.

## Technical Branch

Lieut. J. T. Gibson is placed on the retired list; July 13.

## Nursing Service

The following Staff Nurses to be Sisters:—Miss E. R. James; June 15. Miss M. W. Walker; July 4.

## Memoranda

Three cadets are granted hon. commns. as Sec. Lieuts. with effect from the dates of their demobilisation.

London Gazette, July 5

## Permanent Commissions

Group Capt. C. S. Burnett, C.B.E., D.S.O., is placed on half-pay, Scale A; July 12.

## Stores Branch

Flight-Lieut. T. Fawdry, M.B.E., is granted a permanent commn., retaining his present substantive rank and seniority, and is transferred to the Stores Branch; November 16, 1920 (substituted for *Gazettes* November 16 and 30, 1920).

## Flying Branch

Capt. W. H. K. Copeland is transferred to the unemployed list; October 31, 1919 (substituted for *Gazettes* February 3, 1920, and November 11, 1919).

## Administrative Branch

Sec. Lieut. (Hon. Lieut.) W. Miller, D.F.C. (unemployed list), relinquishes his temp. commn. on appointment to T.F.; June 30.

## Technical Branch

Lieut. C. P. W. Jolliffe (unemployed list) relinquishes his temp. commn. on appointment to T.F.

London Gazette, July 19

## Permanent Commissions

Flight-Lieut. M. B. Frew, D.S.O., M.C., A.F.C., is granted a permanent commn., retaining his present substantive rank and sen.; October 24, 1919 (*Gazette* October 24, 1919, appointing him to a short service commn. is cancelled). Flight-Lieut. F. L. C. Butcher is placed on half-pay, Scale B, from June 1 to July 12 inclusive (*Gazette* May, 24, placing this officer on half-pay, is cancelled).

## Stores Branch

Flight-Lieut. J. L. Robertson is granted a permanent commn. in the rank stated with effect from September 12, 1919, and is transferred to the Stores Branch for accountant duties, with effect from June 18. (*Gazette* Sept. 12, 1919, appointing him to a short service commn. is cancelled.) Flight-Lieut. H. W. Stratton, O.B.E., is placed on the retired list, and is granted rank of Lieut.-Col.; July 14.

## Short Service Commissions

The following are granted short service commns. in ranks stated, with effect from and with sen. of the dates indicated:—

*Flying Officers*.—J. G. Argles; July 7. E. E. Arnold, D.F.C.; July 11. L. W. Beal; July 4. P. R. Cawdell; July 9. W. L. Hope; July 4. I. M. Morris; July 5, (from Pilot Officer). H. R. McL. Reid; July 5, (from Pilot Officer). H. R. Sayers; July 7. C. E. Stuart; July 5. A. S. White, A.F.C.; July 5.

*Pilot Officers on Probation*.—\*W. I. N. Grant; July 7. R. H. Mahon; July 5. \*T. J. Shaw; July 5. \*D. R. Sharman, M.C.; July 7. \*R. C. Wansbrough; July 4. F. G. Whitmore; July 8.

Flying Officer C. F. C. Wilson resigns his commn., and is permitted to retain rank of Lieutenant; July 20.

## Stores Branch

The following are granted short service commns. in ranks stated for accountant duties, with effect from the dates indicated:—

*Flight Lieutenant on Probation*.—I. L. Wincer; July 4.

*Flying Officers on Probation*.—\*S. H. Atherly, \*H. W. Capener, J. H. B. Carson, E. G. Jolliffe, \*G. W. Lynn, F. J. S. Short; July 4. W. J. Heneghan; July 5. J. L. Armstrong; July 6.

*Pilot Officer on Probation*.—\*D. J. Sherlock; July 5.

The seniority of all officers granted commns. in the Stores Branch for accountant duties is provisional only. The final seny. list of all such officers will be promulgated when the establishment is completed. \* Denotes previously served in R.A.F.

## Flying Branch

Pilot Officer W. C. Dargavel to be Flying Officer; Dec. 22, 1919.

Transferred to the unemployed list:—Capt. J. S. Smith (substituted for *Gazette*, Aug. 22, 1919. Lieut. W. C. Dargavel; Aug. 5, 1920 (substituted for *Gazette*, Aug. 17, 1920).

## Memoranda

The rank of Flight-Lieut. J. S. Smith is as now described and not as *Gazette* May 3 and June 24. Squad.-Leader. F. H. Moody, M.C. (Maj. I.A.), to be acting Group Capt.; April 11.

London Gazette, July 22

## Permanent Commissions

Flying Offr. H. E. Walker, M.C., D.F.C., is placed on half pay, Scale B, from Feb. 21 to Sept. 10, inclusive. (*Gazette* March 18 concerning this officer is cancelled.)

## Short Service Commissions

The follg. are confirmed in the rank of Pilot Offr.—J. S. L. Adams, G. J. T. Bahin, G. S. Brown, M. H. Ely, D. H. Geeson, G. Hopkins, J. de la P. B. Preston, R. L. Ragg, G. H. Smith, B. A. C. South; July 15.

## Flying Branch

Sec. Lieut. F. H. Wrigley to be Lieut.; June 21, 1918. The follg. offrs. (Unemployed List) relinquish their temp. commns. on appoint. to T.F.—Lieut. (actg. Capt.) C. M. Maud, D.F.C.; Sec. Lieut. B. S. W. Taylor, D.F.C. Sec. Lieut. F. G. Urnston (Unemployed List) relinquishes his temp. commn; on restoration to T.F.; Feb. 20, 1919.

Transferred to the Unemployed List.—Sec. Lieut. G. A. R. Mergard; March 5, 1919.) Sec. Lieut. C. R. C. Pink; May 16, 1919. (Substituted for *Gazette*, May 27, 1919.) Lieut. J. L. FitzM. Creighton; June 23. Pilot Offr. F. B. Stark, M.M., is restd. to the Active List; July 2.

## Administrative Branch

Lieut. F. H. Wrigley is transfd. to the Unemployed List; Jan. 14, 1919. (Substituted for *Gazette*, April 1, 1919.)

## Technical Branch

Lieut. F. C. Laxton (Unemployed List) relinquishes his temp. commn. on appt. to T.F.; June 30.

The follg. Lieuts. are transfd. to the Unemployed List.—E. W. Hooton-Smith, A. W. H. Phillips; July 5.

## Titanine Available Just the Same as Ever

ALTHOUGH after the disastrous fire at the Titanine factory, which was recorded last week in *FLIGHT*, it might well have been thought supplies of this valuable dope would, by their scarcity, rise to a premium, we understand the fire in no way interferes with the Company's business. So efficient is the Titanine organisation that they are filling their orders just as if nothing had happened. No doubt this is not as easy for them as it sounds, but there it is. The firm were at once able to so re-arrange operations that they have not had to disappoint a single customer.

## Tait-Cox and James—Test Pilots

We are glad to learn that L. R. Tait-Cox and J. H. James, the winner of the Aerial Derby, have established themselves as a firm of test pilots. Both are well known in the aviation world, and have had long experience in test work. It may be remembered that as long ago as 1916 they were both down at Farnborough doing testing, and they have had much experience ever since on all sorts of machines. Both are among the very finest pilots in the country, and two active partners should ensure that one or other is always available for firms who require test flights made at short notice.





## THE FIRST AMERICAN COMMERCIAL DIRIGIBLE LINE.\*

By Lieutenant C. A. TINKER, U.S.N.R.F.

WASHINGTON is to be the headquarters of the largest airship corporation in the world, with a capital of \$50,000,000, backed by the strongest American financial interests in the manufacturing and technical world. Plans have just been received from Europe by Mr. Fred S. Hardesty, Consulting Engineer of Washington, for the first ship to be built by this corporation, and engineers connected with the corporation are on the way from Europe with the detailed engineering drawings to be used in its construction. The ship will be 752 ft. long, 96 ft. in diameter, gas capacity 3,355,000 cu. ft., 3,000 h.p., speed 80 to 100 m.p.h., disposable lift 80 tons, passenger capacity 52, and a cruising radius of 10,000 miles.

Mr. Hardesty has been prime mover in this organization, beginning his activities immediately after the Armistice, when he secured from abroad the technical data and rights of the world for the manufacture of rigid airships. Associated with him is Mr. Edward Schildhauer, Civil and Mechanical Engineer, who designed the electrical equipment of the Panama Canal; Mr. Schildhauer was engineer-in-chief on the gigantic water-way, designing the operating machinery for the locks, the electric towage devices, the power plants, and other electric equipment which makes the Canal possible. Other engineers on Mr. Hardesty's staff are H. S. Jacoby, Mechanical Engineer, who will have charge of the terminal and manufacturing buildings of the corporation; Mr. Henry Harrison Suplee, Consulting Engineer, a member of the American

\* Extracts from article in *Aerial Age*, N.Y.

Society of Mechanical Engineers and of the Society of Civil Engineers of France; Lieut. Hanson E. Ely, Jun., U.S.N., retired, who is concerned in the operating end of the enterprise. Mr. Hardesty has enlisted the support of the largest industries in the country and members of the corporation come from practically every state in the Union.

The organization of the corporation has been made possible by a hearty co-operation of the Army, Navy, Post Office, Commerce and State Departments of the Government, without whose aid the project would have been practically impossible owing to post-War international complications.

The first line will be opened between New York and Chicago and then extended to San Francisco, with other lines radiating throughout the country as the ships are built and placed in commission. They will be the safest ships in the world. By the use of helium the fire hazard will be done away with.

The design of these ships is the result of two years of intense investigation and will be a composite design of the best European ships with modifications resulting from research in this country. Investigations are still going on in Europe in the interests of the corporation. Mr. Schildhauer, Mr. Ely, and Mr. Jacoby, having just visited France, Italy, and Germany, are now in England conferring with the Air Ministry in connection with the operation of mooring masts, the building of terminal facilities and other engineering features which will make the airships and air-ports of the corporation the best in the world.

## SOME AIRCRAFT DISPOSAL "DISPOSALS."

NEXT to the question "Where do flies go in the winter time?" comes the mystery of "Where do the Aircraft Disposal machines go?" From Col. M. O. Darby, the General Manager of the "A.D.C.," come some interesting facts which partly answer this latter query—on the first he could give no satisfactory solution, saying, summer or winter there are no flies on them!

Since the Aircraft Disposal Co. came into being a considerable amount of the vast surplus stock—airplanes, engines, and spares, etc.—has been disposed of. It should be mentioned here that the "A.D.C." spent many months in classifying, sorting, testing, and rejecting the unfit, so that the remaining stock consisted of material in perfect working order only. The works and aerodrome at Waddon are used for assembling and testing the aircraft and engines, the company having a staff of mechanics and pilots for this purpose. No machine is allowed to leave the works until it receives the Air Ministry certificate of airworthiness.

What has happened to some of the machines follows, and may, we think, be of interest. The Belgian Government has received a number of Avros, which are being used mainly as training machines for the Belgian Flying Corps. Many machines of various types have gone over to South America,

where they spread themselves out—figuratively speaking, not literally—over different parts of that continent. Other parts of the world, particularly the east, have also received "A.D.C." machines. Again, the following notable flights were carried out on machines supplied by the "A.D.C.": Lieut.-Col. Sir John Ryneveld's South African flight; 15,000 miles by Lieuts. J. C. McIntosh and R. I. Parer from London to Melbourne; Lieut. Vaughan Fowler's flights from London to Copenhagen in 5 hrs. 40 mins., and Berlin-London in 6 hrs. 10 mins.; Amsterdam-London-Amsterdam flight with mails in 12 hrs., by Maj. Foote; 2,169 miles from Perth (West Australia) to Melbourne by Lieut. Briggs; the first Portugal-Madeira flight by the Portuguese Navy; the Bristol Fighter, presented to H. M. the King of the Belgians, has made numerous notable flights; the S.E.5's used in the first Oxford and Cambridge Air Race.

As regards aero engines, these have been disposed of in large numbers—over 1,000 having been supplied to various parts of the world during a period of six months. It is significant that the engines for the Baby Avro which is being taken by Sir Ernest Shackleton on his new expedition are being supplied from the "A.D.C." stock.

## IN PARLIAMENT

### Airships

MR. RAPER on July 20 asked the Secretary of State for Air the estimated time by airship for the following journeys: England-Egypt, England-Karachi, England-Johannesburg, England-Perth (Western Australia)

Capt. Guest: Assuming that the ground organisation is complete, and a regular service established, it is estimated that the following times will be taken:—

	Days.		Days.
England-Egypt	2½	England-Johannesburg	7
England-Karachi	5	England-Perth (Western Australia)	10½

Mr. Raper asked the Secretary of State for Air what were the working results of the German airship "Bodensee" during the period she was run by the Delage Company

Capt. Guest: I have had the information which my hon. and gallant friend requires extracted from the sources open to us, but as the resulting statement is rather long and somewhat complicated, I propose to circulate it in the Official Report.

The following is the statement referred to:—  
"This airship was operated during the latter part of 1919 by the Deutsche Luftschiffahrt Company for purposes of experiment and propaganda. Regular flights were carried out daily between Berlin and the Swiss frontier, the fare being 575 marks per head and the time occupied being from six to seven hours. On November 2, 1919, the airship was damaged in a snowstorm, but the service was re-established on the 11th of the same month. The airship was finally laid up for reconstruction on December 1, 1919.

"At the general meeting of the Company it was stated that the experimental and propaganda enterprise was a complete success, and had been extensively patronised by the public, and that the financial result, considering that the whole elaborate organisation had to be carried out for a single airship, was not unfavourable, though a slight loss was inevitable. The spasmodic increase in expenses, especially fuel, had a particularly unfavourable effect. The 'Bodensee' had carried out 103 flights on 81 flying days; she had been 535 hours in the air, and had carried 2,800 passengers, 4,500 kilos. of mail, and about 30,000 kilos. of goods."

### Cost of Airships

CAPT. WEDGWOOD BENN, on July 20, asked the Parliamentary Secretary to the Admiralty whether he can state approximately the total cost of construction, maintenance, housing, personnel, staff, and all other charges in connection with airships from the date of the Armistice to the date when they passed to the control of the Air Ministry?

Mr. Amery: The approximate total expenditure upon the airship service from naval funds for the period in question was £4,300,000. This amount represents the actual payments made during that period, and includes some payments which relate to liabilities incurred at an earlier date. It is not practicable, without the expenditure of considerable labour, to say what portion of the amount relates to such earlier liabilities.

Capt. Benn: May I take it that the figures include all charges under the headings given, and perhaps some others?

Mr. Amery: Yes.

### An American "Baby"

BERT ACOSTA, the U.S. pilot, recently tested the Maumert "Baby Vamp," a single-seater biplane of only 18-foot span, and weighs 350 lbs. without its passenger. It is said to have a speed of 90 miles per hour, and to carry fuel for six hours.

### First Oxford v. Cambridge Air Race

We regret that through a slip the names of the second and third pilots of the Cambridge Team were transposed in last week's result given on p. 493 (Royal Aero Club Notes). R. K. Muir was second, and H. A. Francis was third.

